

An Application of Electrochemical Method for Studying Composite Plating.

Nguyen Ngoc Phong^a, Ngo Thi Anh Tuyet^a, Do Chi Linh^a, Nguyen Viet Hue^{a,b},
권식철^b, 김만^b, 이주열^b

^aThe Institute of Materials Science, 18 Hoang Quoc Viet, Hanoi. 10000, Vietnam.

^b한국기계연구원 표면기술연구센터

1. 서론

Nano sized particles were used to form composite plating. The influence of nano-sized particles involves on the identification of microstructure in the lattice, thereby affect on the hardness and wear resistance of deposition. The aim of this study is to use an electrochemical method to study the function of inert particles in the composite plating in order to extend the applicability of this plating into industry.

2. 본론

The influence of species or amount of nano particles and pH on nickel nano-composite plating was investigated by cathodic polarization in the plating solution; corrosion resistance was evaluated by anodic polarization in 3.5% NaCl solution. From this measurement, the corrosion and passive current density, pitting potential were calculated and used for evaluation of corrosion behavior of composite deposition.

3. 결론

Electrochemical method for plating process

The cathodic polarization curves of steel in Watts bath at different pH were shown that, cathodic polarization increases with reducing of pH, maybe it concerns with discharge competition of H⁺ and Ni⁺⁺ ions.

The influence of different nano-powder on plating process was studied also, but does not distinguished clearly.

Electrochemical method for corrosion resistance evaluation

Electrochemical measurement showed that the corrosion and passivation current densities of nano-composite deposits were decreased in hundreds amplitude order, compared with deposit without inert particles and reached minimum with carbon powder particles.

Being dispersed into plating layer, inert particles increase the corrosion resistance; the best is rice ash particle.

참고문헌

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